CLAIMS

1. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide expressed by the composition formula $A_2B_2O_7$ (where A is an element selected from the group consisting of La, Nd and Sr, and B is an element selected from the group consisting of Ti, Si, Nb and Ta).

2. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide having a K_2NiF_4 structure expressed by the composition formula X_2YO_4.

3. A thermal barrier coating material according to claim 2, wherein X of the oxide expressed by said composition formula X_2YO_4 is La or Sr, and Y is Ni or Ti.

4. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide expressed by the composition formula $Sr_3Ti_2O_7$ or $Sr_4Ti_3O_{10}$.

5. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide expressed by the composition formula $LaTaO_4$.

6. A thermal barrier coating material comprising as a main component, a ceramic composition of a combination of two or more kinds of compositions selected from the oxides as in claim 1 and claim 3 through claim 5.

7. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide having an olivine type structure expressed by the composition formula M_2SiO_4 (where M is a divalent metal element).

8. A thermal barrier coating material according to claim 7, wherein M of the oxide expressed by said composition formula M_2SiO_4 is Mg or Ni.

9. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base

metal,

comprising as a main component, an oxide having an olivine type structure expressed by the composition formula $(MM')_2SiO_4$ (where M, M' are both divalent metal elements).

10. A thermal barrier coating material according to claim 9, wherein M of the composition formula $(MM')_2SiO_4$ is Mg or Ni, and M' is a metal element selected from the group consisting of Ca, Co, Ni, Fe, and Mn.

11. A thermal barrier coating material comprising as a main component, a composition of a combination of a zirconia material and an oxide as in any one of claim 1 through claim 10.

12. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide containing Nb and either an alkaline earth metal or a rare earth element.

13. A thermal barrier coating material according to claim 12, wherein said oxide is an oxide selected from the group consisting of $Sr_4Nb_2O_9$, $Sr_5Nb_4O_{15}$, $Ca_2Nb_2O_7$, $YNbO_4$ and $LaNbO_4$.

14. A thermal barrier coating material according to claim 2, wherein an X of the oxide expressed by said composition formula X_2YO_4 is any one of Pr, Nd and Eu, and Y is Ni.

15. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide expressed by the composition formula $La_{(1-x)}M"_xTaO_4$ (where $0 < x \leq 1$, and M" is a metal element selected from the group consisting of Al, V, Cr, Fe, Ga, Y, Rh, In, Ce, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, and Lu).

16. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide containing Ta and an alkaline earth metal.

17. A thermal barrier coating material according to claim 16, wherein said oxide is $Ca_4Ta_2O_9$ or $BaTa_2O_6$.

18. A thermal barrier coating material comprising as a main component, a ceramic composition of a combination of oxides of two or more kinds selected from the oxides as in any one of

claim 13 to claim 15, and claim 17.

19. A thermal barrier coating material comprising as a main component, a ceramic composition of a combination of; oxides of one or more kinds selected from oxides expressed by the composition formulas $A_2B_2O_7$ (where A is an element selected from the group consisting of La, Nd and Sr, and B is an element selected from the group consisting of Ti, Si, Nb and Ta), X_2YO_4 (where X is La or Sr, and Y is Ni or Ti), $Sr_3Ti_2O_7$, $Sr_4Ti_3O_{10}$, and $LaTaO_4$, and oxides of one or more kinds selected from oxides expressed by the composition formulas $Sr_4Nb_2O_9$, $Sr_5Nb_4O_{15}$, $Ca_2Nb_2O_7$, $YNbO_4$, $LaNbO_4$, X_2YO_4 (where X is any one of Pr, Nd and Eu, and Y is Ni), $M"_xTaO_4$ (where M" is a metal element selected from the group consisting of Al, V, Cr, Fe, Ga, Y, Rh, In, Ce, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, and Lu), $Ca_4Ta_2O_9$ and $BaTa_2O_6$.

20. A thermal barrier coating material, comprising as a main component, a composition of a combination of a zirconia material and an oxide as in any one of claim 12 through claim 17.

21. A thermal barrier coating material according to claim 1, wherein said oxide is an oxide selected from the group consisting of $Sr_2Nb_{2-x}Ti_xO_7$, and $Sr_2Nb_{2-x}Zr_xO_7$ ($0 < x \leq 2$).

22. A thermal barrier coating material according to claim 12, wherein said oxide is an oxide selected from the group consisting of $Sr_4Nb_{2-x}Ti_xO_9$, and $Sr_4Nb_{2-x}Zr_xO_9$ ($0 < x \leq 2$).

23. A thermal barrier coating material according to claim 12, wherein said oxide is an oxide selected from the group consisting of $Ca_{11}Nb_4O_{21}$, La_3NbO_7, and $DyNbO_4$.

24. A thermal barrier coating material according to claim 16, wherein said oxide is an oxide selected from the group consisting of $BaTa_{2-x}Ti_xO_6$, and $BaTa_{2-x}Zr_xO_6$ ($0 < x \leq 2$).

25. A thermal barrier coating material according to claim 2, wherein said oxide is $La_{2-x}Ca_xNiO_4$ ($0 < x \leq 2$).

26. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising an oxide selected from the group consisting of composition formulas $SrYb_2O_4$ and $Sr_4Yb_2O_9$.

27. A thermal barrier coating material applicable to a thermal barrier coating for coating the surface of a base metal,

comprising as a main component, an oxide expressed by the composition formula J_6WO_{12} and J_2WO_6 (where J is an element selected from rare earth elements).

28. A thermal barrier coating material comprising as a main component, a ceramic composition of a combination of materials of two or more kinds selected from the oxides as in any one of claim 1, claim 3 to claim 5, claim 13 to claim 15, claim 17, and claim 23 to claim 27.

29. A thermal barrier coating material comprising as a main component, a composition of a combination of zirconia material and an oxide as in any one of claim 21 through claim 27, or a ceramic compositions of claim 28.